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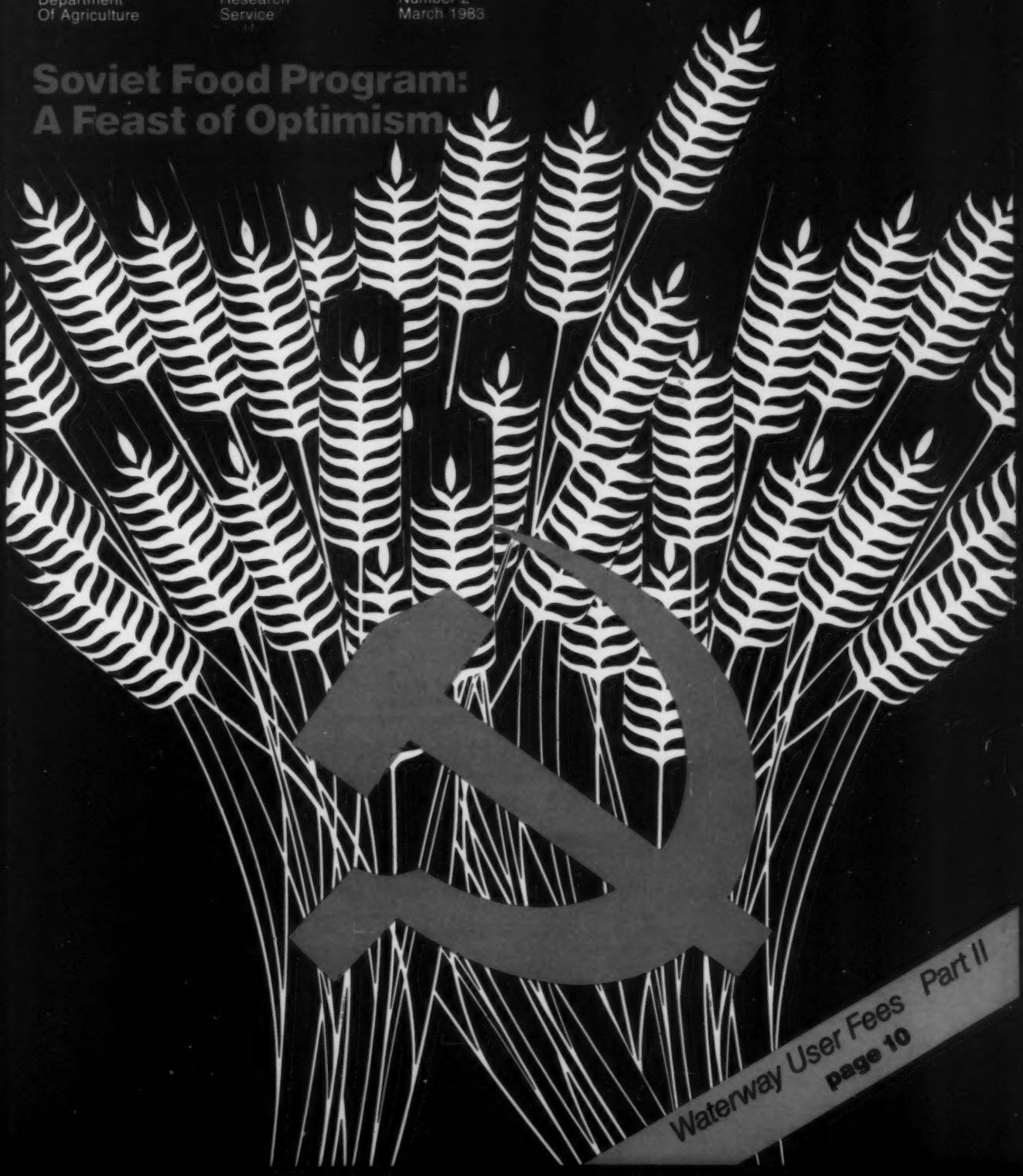
Soviet Food Program: A Feast of Optimism



Waterway User Fees Part II
page 10

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PERSPECTIVES

FALLING OIL PRICES carry some risks, but the net impact should be positive for the U.S. economy, the world economy, and American agriculture. That's the bottomline assessment of energy analyst Tony Prato. Prato and his colleagues in USDA's Economic Research Service say that farmers may reap dual benefits--savings on fuel bills and increased demand for their products at home and abroad.

Based on the latest round of price cutting by major oil exporters, oil is likely to average $25-$30 a barrel this year, down from 1982 prices of around $33 and 1981 prices close to $35. Prices haven't averaged under $30 a barrel since 1979.

U.S. farmers may save around $700 million this year on gasoline and diesel fuel because of the oil price cuts, estimates economist Dave Torgerson. And that's on top of fuel savings from 1983 acreage reductions. The difference will show up in cash flow and farm income, freeing up funds to help meet current expenses.

Food demand should also get a lift. Low-income Americans have probably made some tradeoffs between food and fuel. More telling, perhaps, is the stimulus to economic recovery. A 10% cut in oil prices translates into a direct savings of $10 billion a year throughout the economy. Energy savings in industry can be plowed back into capital investment and expansion as recovery takes hold, boosting employment, incomes, and consumer spending. That means stronger domestic demand for farm products, Prato says. Lower oil prices will also help keep food prices down because energy adds to costs of producing, processing, and transporting food.

In the world economy, some of the biggest savings will go to major U.S. farm markets, such as Japan and West Germany. The developing countries that import oil will also reap significant benefits. "High oil prices have been a serious drain on their economies, eating into money that could have gone to elevate standards of living. Lower oil prices may help them meet urgent needs for food and economic development," Prato says. Some of the debt-ridden oil exporters will now find it harder to finance imports, but food imports should continue to grow in the Mideast OPEC nations.

Among the risks: Can the world monetary system adjust? Nations like Mexico had counted on rising oil prices to pay back billions in loans from U.S. and European banks (though Brazil, an oil importer with even larger debts than Mexico, benefits). Banks may have to carry some nations along, perhaps at a loss, but most analysts don't see a collapse in the monetary system from $25-$30 oil. The system was able to handle surges in oil prices; it should be able to handle moderate declines. Another concern is that OPEC revenues had provided much of the capital for lending by Western banks. Without more credit, many developing nations will be hard-pressed to meet current debt obligations, adding to dangers of defaults.

Isn't the U.S. economy also fueled by petrodollars? OPEC investments in the U.S. may total more than $200 billion, but much of the return goes back to OPEC. For example, Saudi Arabia earns $4 billion a year in interest solely from its holdings of U.S. Treasury bills. Growth in domestic dollar investments from fuel savings will be a lot more productive than growth in OPEC investments, Prato contends.

Will U.S. government deficits rise? Revenues from windfall profit taxes on oil companies will suffer, but revenues from other sources may soon take their place. Lower energy prices should hasten economic recovery, bringing increased tax revenues from businesses and jobholders and reducing unemployment compensation.

Is cheaper oil here to stay? Analysts expect oil prices to start back up again after demand rebounds--the only question is when. "The good news," says Prato, "is that we're less dependent on oil. For each dollar of GNP, we don't require as much energy as we did 5 or 10 years ago. The bad news is that we're still not finding as much oil as we're using. When the economy recovers, we may see how much of our reduced oil demand came from greater efficiency and conservation and how much was simply due to economic recession." One risk is that a few years of relatively cheap oil will retard progress toward energy efficiency and discourage exploration and development of new domestic sources of oil and alternative fuels.

FARMLINE

AGRICULTURE . . . NATURAL RESOURCES . . . RURAL DEVELOPMENT
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FEATURES

Soviet Food Program: A Feast of Optimism *by Yuri Markish* 4

If the jingle of money is a measure of commitment, the new Soviet Food Program has a hollow ring. It aims for greater agricultural self-sufficiency from a smaller capital investment—an unlikely achievement given past trends. Overall, the program seems to express the hopes of Russian planners rather than their expectations. It offers scant attention to the root problems that haunt Soviet agriculture.

Rural Jobs at Risk *by Eric Van Chantfort* 9

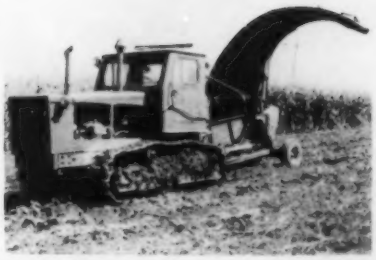
As slack demand and foreign competition take a toll on U.S. manufacturing employment, rural areas may share the consequences along with urban industrial centers. Economists Herman Bluestone and Daniel Williams challenge a few myths about the relative dependence of rural and urban workers on large manufacturers and the relative vulnerability of jobs to foreign competition.

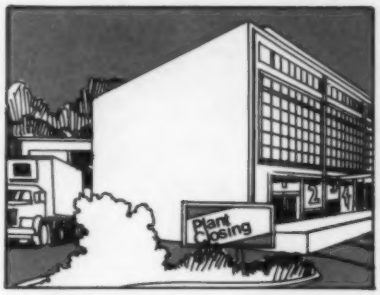
Waterway User Fees: Who Picks Up the Tab? *by Patricia F. Singer* 10

For farmers, the most sensitive question raised by waterway user fees is who would ultimately pay them. Some analysts say costs would be passed on to importers. Others disagree. But there's wide consensus on a related issue: If fees aren't picked up by foreign customers, some U.S. states and regions would be affected far more than others.

Grain Prices Linked to Location of Stocks *by Eric Van Chantfort* 12

World grain stocks are at record levels, but volume can't take all the blame for current prices. The location of stocks is also a key issue, according to economist John Dunmore. Roughly 60% of world stocks are sitting here in the USA. If world stocks were distributed a little more evenly, prices could get a boost—perhaps a big boost—even without any change in overall volume.





DEPARTMENTS

Agricultural Roundup: U.S. Farmers Cut Plantings; Soviet PIK Program 8

Reports in the News: Cropland Trends; Agricultural Chartbook 14

Farmline Trends: Monthly Price Monitor 15

Soviet Food Program: A Feast of Optimism

Soviet policymakers are beginning to discuss "shortcomings in the economic mechanism."

If the jingle of money is a measure of commitment, the Soviets' loudly trumpeted "Food Program" has a hollow ring.

The new effort, announced last May, is intended to significantly increase agricultural output and improve self-sufficiency by 1990. It's built on the current 5-year plan (1981–85) for agriculture, which emphasizes greater efficiency rather than stronger growth in capital investment.

The 5-year plan is off to a bad start; the first 2 years have already been marked by massive crop shortfalls. Weather is partly to blame, but the problems seem to go much deeper. A closer look at the 5-year plan may reveal why analysts are skeptical about the longer range Food Program.

The 5-year plan allocates 233 billion rubles ($338 billion) for capital investments to upgrade the Soviet "agro-industrial complex," which includes farms, support industries, and food processing and distribution industries.

While this figure may seem impressive, it constitutes a 4-percent decline in capital investment from the 1976–80 plan, which allocated 242 billion rubles in an effort to modernize the USSR agricultural sector. And, if a 9-billion-ruble dip seems relatively slight, bear in mind that the 1976–80 plan was financed by a 47-percent increase in capital investment from the 165 billion rubles provided in 1971–75.

A decline in planned investment is especially puzzling considering the state of Soviet agriculture—inadequate equipment, the poor quality of fertilizers and pesticides, underdeveloped irrigation and transportation systems, and an inefficient food processing industry.

A drop in investment funds might be rationalized by the avowed Soviet intention of increasing the returns on each ruble invested. Yet the data on efficiency show that the Soviets are actually getting a smaller return on capital expenditures in agriculture. From 1966 to 1970, the return was 4.72 rubles worth of agricultural production for each ruble of capital investment. By 1976–80, the return had fallen to 2.56 rubles, and it may have dropped even further in the last few years.

The record is poorer still when returns on additional investment funds are measured. As the Soviets have steadily pumped more money into their agro-industrial complex during recent 5-year plan periods, each additional ruble invested has generated progressively smaller gains in gross agricultural output. Returns per ruble of additional investment declined from 2.12 rubles in 1966–70 to 1.14 rubles in 1971–75. In 1976–80, each additional ruble invested generated only 1.04 rubles worth of additional agricultural output.

These figures confirm the need for substantial and sustained improvements in efficiency, but they also reveal a stubborn trend in the opposite direction. Past calls for greater efficiency haven't altered that trend. Unless the latest plan yields unprecedented results, stronger Soviet agricultural performance would seem to require an accelerated rate of investment growth—rather than a decline in investment—to offset steadily diminishing returns on capital expenditures.

Soviet Skepticism

The skepticism isn't limited to Western experts. The new Soviet leader, Communist Party Chairman Yuri Andropov, recently declared that slogans alone will not revitalize the Soviet economy. Andropov called for reforms in the centrally planned economic system to increase productivity.

According to Soviet statements, unfavorable weather is partly responsible for harvest shortfalls, inefficiency, and

other agricultural problems. However, Soviet policymakers are beginning to discuss what their periodicals call "shortcomings in the economic mechanism," including:

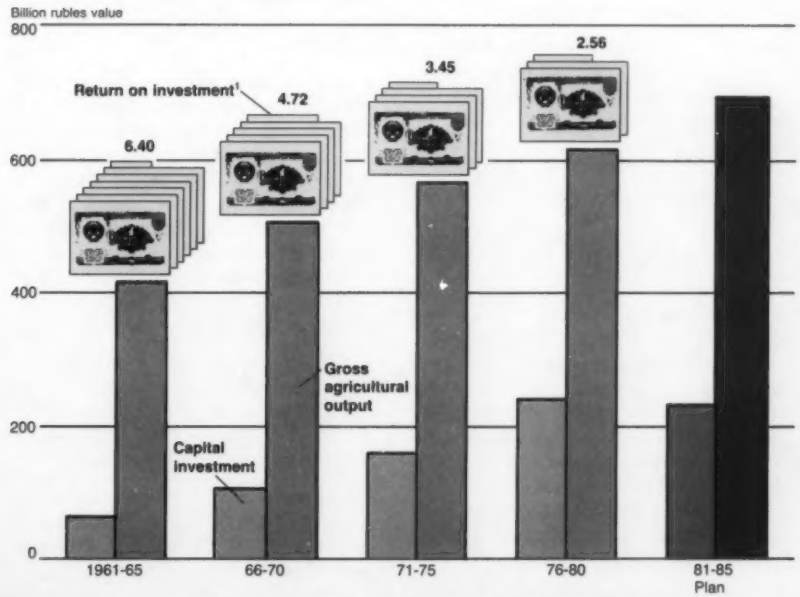
- Agricultural labor shortages caused by a large, ongoing rural-to-urban migration, leading to an aging of the rural labor force.
- Continuing shortages of needed fertilizers and pesticides. In 1980, the Soviets applied 75 pounds of fertilizer (nutrient content) per acre, compared with more than 100 pounds per acre applied by U.S. farmers. Only 57 percent of USSR grain area was fertilized last year, and the fertilizers used don't match the quality of U.S. fertilizers.
- Increasing real costs—and, in recent years, price increases—for the industrial inputs and services needed by agriculture. Higher production and operating costs in industry have not been matched by increases in quality, so Soviet farms now receive less real resources per ruble of capital expenditure.
- Inadequate design, construction, and supply of Soviet farm machinery. "A great number of our motor vehicles are 15 to 25 percent heavier than the same vehicles abroad ... the motor resource is two times less, and productivity is 20 percent lower," the Soviet deputy minister of foreign trade is quoted as saying. Other machinery problems include a long lag between prototype testing and assembly line production, lack of small-scale machinery for private plots, and high breakdown rates. One senior planner complained, "Agriculture is receiving mechanically underdeveloped, often unusable, and wasteful combines."
- Large losses and waste in agricultural production because of inadequate handling, transportation, storage, and processing facilities.

These problems aren't new. In the late 1960's, the government tried to increase agricultural output with a massive infusion of investment. The 1966–70 plan provided a 65-percent jump in investment in the agro-industrial complex, and an additional increase of 55 percent was provided in the next 5-year plan.

Gross agricultural output increased with these investments, gaining 21 percent in 1966–70 and 13 percent in 1971–75. In the most recent period, 1976–80, growth in gross agricultural output slowed to 9 percent despite a 47-percent increase in investment in the agro-industrial complex.

Now, the Soviets are trying to squeeze a 13-percent gain in agricultural output out of a smaller capital investment. The emphasis is on greater efficiency.

The 1981-85 Plan Calls for Larger Output from Smaller Investment ... But the Record Shows that Past Output Gains Were Tied to Accelerated Investment Growth, Not Higher Returns on Investment



[1]Rubles worth of agricultural production per ruble of capital investment in the Soviet agro-industrial complex.

Realistic Goals?

Efficiency goals might be more realistic if more attention were focused on the industrial portions of the agro-industrial complex where the potential for improvement is significant. There is heavy damage, loss, and spoilage of agricultural products between farms and retail shelves. However, capital investment into industries serving agriculture is actually 40 percent less in the current plan than in the 1976–80 plan.

Given these cold facts, how do Soviet planners hope to achieve Food Program goals? They may be banking in part on greater financial incentives to farmers. Since January 1979, the government has substantially increased the prices it pays for many commodities entering the state distribution network. Milk procurement prices, for example, rose 14 percent. Another round of price increases

In Meats, Fruits, and Vegetables, Per Capita Consumption Lags Far Behind Soviet Dietary Goals

	Consumption norms[1]	Actual 1980 consumption	Planned consumption for 1990
		pounds per capita	
Meat and meat products	172	126	154
Fish products	40	37	42
Milk and milk products	893	692	728–750
Eggs (in units)	292	238	260–266
Sugar	88	93	100
Vegetable oils	20	19	29
Vegetables and melons	287	205	278–298
Fruits and berries	201	75	146–154
Potatoes	243	247	243
Bread products	254	306	298

[1] Issued by the Soviets in 1981 as countrywide nutrition standards.

for several commodities was due early this year.

At the same time, retail prices haven't been raised—at least not in state-run stores. The result has been ever-growing retail price subsidies, which now total about $48 billion a year. In fact, subsidies are so large for some items, such as red meats, that they exceed the retail price. In such cases, retail prices would more than double without subsidies.

Although the subsidies put a great strain on the Soviet economy, the government is apparently unwilling to accept greater dependence on outside supplies. Red meats, for example, might be bought more cheaply on the world market, but the Soviets are strongly committed to maintaining their own livestock herds.

Another card which Soviet planners seem to be playing in the quest for greater self-sufficiency is increased involvement of their armed forces in agriculture through the expansion of military farms. Soviet military units traditionally farm to supplement food supplies.

Although little is known about the output of military farms, the ministry of defense planned to increase production by 15 percent last year. The goal for this 5-year period is a 50-percent increase in output over levels attained in 1976–80. Another 50-percent increase is targeted for the 1986–90 plan, which would expand the grain area and livestock production on military farms.

"What we see on soldiers' and sailors' tables is in no small degree produced within the armed forces," the deputy minister of defense recently declared. Considering the massive size of the Soviet military establishment, the production potential may be substantial, but so are military food needs. If there's any surplus for the general population, it will be very limited.

Food Shortages

Despite ambitious plans, past and present, food shortages continue to plague the USSR. Investment effc·ts over the last 10 years have failed to significantly raise farm production. Meanwhile, large retail price subsidies have so strengthened the demand for food that even farmers are buying from the state retail outlets rather than producing many products themselves.

Supplies of some commodities, particularly meat products, milk, and butter, are so short that rationing programs were established in many areas. In the Georgian Republic, for example, ration cards have been issued for butter and sugar for the first time since 1940. Severe shortages are also reported in the western Ukraine and Siberia.

It was this situation that prodded the Central Committee of the Communist Party to establish a "Food Program for the USSR up to 1990," as the program is formally called. A close examination of the Food Program indicates that the Soviets will be hard pressed to meet its dietary and production targets.

Here are some of those goals. Consumption levels are minimum 1990 per capita targets compared with actual 1980 consumption. Production levels compare minimum 1986–90 goals with actual 1976–80 output:

- Per capita meat and meat product consumption is targeted at 154 pounds a year, far above the 126 pounds eaten in 1980. To achieve this, 20 million metric tons of meat must be produced, compared with actual average annual production of less than 15 million tons in 1976–80.

- Grain consumption (bread products) is to be 298 pounds per capita annually, slightly less than the 306 pounds actually consumed in 1980. Since grain is a substitute for meat in the USSR, the relatively small drop in projected grain intake indicates that planners don't really expect to reach the high meat consumption target. Grain production is aimed at 250 million metric tons, up from an average of 205 million in 1976–80.

- The dairy consumption goal is 728–750 pounds, compared with 692 in 1980. Planned annual production is 104 million metric tons, well above the 93 million produced in 1976–80.

- Egg consumption is set at 260–266 eggs, up from 238. The production target is set at 78 billion eggs, compared with 63 billion.

- Vegetable and melon consumption

Despite ambitious plans, food shortages continue to plague the USSR.

would rise to 278–298 pounds, compared with actual 1980 consumption of 205 pounds. Vegetable production is to rise from 26 to 37 million metric tons.

• Fruit and berry consumption is to rise to 146 pounds from 75. Production should increase from 15 to 24 million metric tons.

Still Too High

Planners lowered their sights in establishing goals for 1986–90, but their targets are calculated as increases above the 1981–85 base. Thus, if the goals for the early 1980's are unrealistically high—as appears to be the case—that may push planners' numbers well beyond the grasp of Soviet farmers. For example, grain production is planned to average at least 238 million tons annually from 1981–85, 16 percent over the 1976–80 level. Production is now estimated at 160 million tons in 1981 and 180 million in 1982—making the goal probably unattainable. Nevertheless, the 1986–90 goal is based on a 5-percent increase over 1981–85 planned production, not actual output.

To meet these goals, enormous gains in production—or in efficiency in handling agricultural products—are required. Considering that many Soviet problems are related to management and bureaucracy, analysts doubt that solutions can be devised and implemented in time to improve prospects for attaining Food Program goals by 1990.

Soviet agriculture has performed poorly in the past, especially in the past decade. Nothing on the horizon offers reason to expect great improvements. Also, the cumbersome organization of the agro-industrial complex moves excruciatingly slow, resisting change.

Other problems also exist. Good cooperative relations are rare between farms and various complementary industries, except at the local level. Living conditions in rural areas are so poor that large investments must be made if the exodus to urban areas is to be stemmed. This will divert capital from investments in agricultural production. Furthermore, the growth in labor productivity has declined steadily over the past 15 years.

If the basic approach of the Food Program is to achieve goals through increased productivity, then the scheme runs counter to trends of declining productivity growth rates in almost every segment of the agro-industrial complex from the 1971–75 to the 1976–80 plan periods.

Given such realities, goals for the Food Program appear to face incredible odds, barring a sudden and massive infusion of capital. To put it another way, the program expresses the hopes of planners rather than practical expectations. It doesn't adequately recognize the root problems which, until they're solved, will continue to burden Soviet agriculture. □

[Written by Soviet section analyst Yuri Markish of the International Economics Division, Economic Research Service.]

Feeding Soviet Livestock

With four poor grain harvests in a row, why isn't distress slaughter occurring within the Soviet livestock sector?

Distress slaughter is expected when total feed grain supplies are so low that livestock numbers must be reduced to maintain weights of remaining animals. Yet USSR livestock inventories have climbed to record levels, with no indication of any large reductions, according to economist Jim Cole of USDA's Economic Research Service.

This development surprised some analysts. Although the Soviets have withheld official 1981 and 1982 grain production data, they acknowledge that their crops were very poor in both years. Distress slaughter, had it occurred, could have provided a measure of the scope of USSR grain shortages.

So, how did the Soviets manage to support large livestock inventories on such short supplies of feed grains? The answer, Cole contends, lies in the availability of nongrain feeds and on large Soviet grain imports. The Soviet livestock sector is not nearly as dependent on feed grains as the more efficient U.S. livestock sector.

By calculating Soviet feed supplies on an oat-equivalent basis and matching total livestock feed against total meat and livestock-product output, Cole and Ed Cook, another USDA Soviet-sector analyst, derived a feed conversion ratio.

The 112 million tons of grain fed in 1981 (based on USDA's estimate) gives a low but feasible feed conversion ratio. No distress slaughter occurred in 1972 and 1974 when the feed conversion ratios were similar. In 1975, when distress slaughter did occur, the feed conversion ratio was significantly lower than in 1981.

Cole also notes that prospects for the next 12 months are not as grim as some experts have predicted if grains, roughages, succulents, and oilseed meal (and other minor feeds) are all considered. In fact, total feed supplies may be the second highest on record, only about 2.5 percent short of 1978 supplies.

Cole cautions, however, that without official Soviet data, these conclusions will have to remain unsubstantiated.

Producers Report Big Acreage Cuts

Depressed crop prices and the acreage-reduction incentives in 1983 farm programs are apparently playing a big role in producers' cropping decisions. USDA's mid-February report on prospective plantings indicated sharp cutbacks in 1983 crop acreage.

Corn growers said they intended to seed 69.6 million acres this year, down 15 percent from last year's level and the smallest plantings in 11 years. By state, the largest acreage reductions were expected in: Iowa, down 2.3 million acres from last year; Illinois, down 1.8 million acres; Minnesota, down 1.6 million; Nebraska, down 1.2 million; Indiana, down 900,000; and Ohio, down 850,000.

Area seeded to the 1983 all wheat crop was reported at 79.9 million acres, down 8 percent from 1982 plantings and the smallest acreage since 1979. Producers' intentions suggested a 32-percent reduction in durum wheat plantings and a 16-percent drop in other spring wheat.

Winter wheat was planted before the payment-in-kind (PIK) program was announced, so the key figure will be harvested acreage, not plantings. Winter wheat producers will weigh the benefits of PIK participation against anticipated yields in deciding whether to harvest all their planted acreage or put some of it in a conservation use.

Cotton producers reported a 19-percent reduction in intended plantings to 9.28 million acres, the smallest acreage in more than a hundred years. Indicated plantings were down 17 percent in Texas and 20 percent in California.

Soybean growers said they intended to seed 68.8 million acres, a 5-percent reduction from 1982. Only three states planned increased soybean plantings, while 23 states planned to reduce acreage.

Tobacco growers intended to harvest 820,400 acres—the smallest acreage since 1889. The USDA report on planting intentions also showed expected declines for several other crops—particularly sunflowers—but increased seedings were indicated for a few crops, such as oats, peanuts, hay, and sugarbeets.

Figures are based on a voluntary survey of 40,000 growers, and actual acreage planted may vary considerably from their reported intentions. Also, the survey may not fully reflect participation in 1983 farm programs because most responses were returned by February 4, well before the March 11 signup deadline for the PIK program. Another factor that could make a big difference in acreage, especially for corn, is the acceptance of whole-farm base acreage bids, if any, under PIK. A special USDA report on PIK signup is scheduled for March 22.

Producers Report Preliminary Planting Intentions[1]

	1981 planted acreage	1982 planted acreage	1983 planting intentions	Change: 1982 to 1983
	thousand acres			
All corn	84,156	81,909	69,569	−15.1%
All sorghum	16,020	16,144	13,068	−19.1%
Oats	13,656	14,211	14,747	+ 3.8%
Barley	9,748	9,634	9,675	+ 0.4%
All wheat	88,928	87,277	79,883	− 8.5%
Winter	65,974	66,351	62,981	− 5.1%
Durum	5,876	4,350	2,940	−32.4%
Other spring	17,078	16,576	13,962	−15.8%
Rice	3,827	3,285	2,258	−31.3%
Soybeans	67,810	72,162	68,825	− 4.6%
Peanuts	1,514	1,299	1,313	+ 1.1%
Sunflower	3,865	5,015	3,860	−23.0%
All cotton	14,330	11,499	9,281	−19.3%
Hay[2]	60,192	60,679	62,465	+ 2.9%
Tobacco[2]	976	904	820	− 9.2%
Sugarbeets	1,252	1,060	1,105	+ 4.2%

[1]Based on a voluntary survey of 40,000 growers in late January. [2]Area harvested.

Soviets Also PIK at Farm Problems

The United States was not alone when it launched PIK—the payment-in-kind program. The Soviets also have one in their farm policy arsenal.

Both programs carry "payments" in the form of farm commodities, and both are targeted at farm problems. But that's about as far as the similarities go.

The U.S. PIK is an acreage reduction program designed to cut production and trim huge stocks of grain, cotton, and rice. Producers who signed up for PIK will receive payment from commodity stocks in the crops they normally grow on the acreage they withdrew from production.

In effect, the program is testimony to the singular success of American agriculture and the productivity of its farmers. The problem, of course, is that U.S. farmers have been too productive in the last few years, and supplies far exceed demand even at current low prices.

The Soviet program, on the other hand, is intended as a stimulant. It's designed to coax greater production from Soviet farms. Essentially, it reflects the persistent inability of the agricultural system to produce enough food, especially meat, for the Soviet people.

Roughly translated from the Russian "natural'naya oplata" (literally, natural payments), the USSR payment-in-kind program offers bonuses for exceeding production quotas. On state grain farms, workers can receive up to 15 percent of the extra grain produced in addition to their regular wages.

State farm workers who assist in the production of vegetables, fruit, and fodder crops are permitted up to 15 percent of the output, with additional bonuses for exceeding their quotas. Similar policies are recommended for collective farms, which are more autonomous than state farms.

Behind the commodity bonuses is the hope that many workers will decide to use the extra grain and fodder to raise additional cows, sheep, goats, poultry, and other animals on their private plots. This would help relieve Soviet meat shortages.

The Soviet payment-in-kind policy should last at least until 1990, the period covered by the new Soviet Food Program. The U.S. PIK program is planned for a few years at most, until supply and demand are brought into a more reasonable balance.

Rural Jobs at Risk

As slack demand and foreign competition take a toll on employment in the U.S. manufacturing sector, much of the concern focuses on the large urban industrial centers. In many cases, however, it may be the nation's small towns and rural communities that suffer the most from factory shutdowns, layoffs, and job cutbacks.

"The idea that this is exclusively an urban problem is based on the myth that rural areas are far less dependent on manufacturing jobs," says economist Herman Bluestone of USDA's Economic Research Service. He points out that industry has been rapidly decentralizing over the past two decades. Manufacturing now accounts for about a fifth of all jobs in nonmetro areas, the same proportion as in metro areas.

"Another mistaken notion," he adds, "is the belief that the larger manufacturing establishments are concentrated in urban areas. It's assumed that manufacturing employees in rural areas are less vulnerable to losing their jobs because they depend more on small, scattered plants and cottage industries, each employing relatively few workers."

Bluestone and colleague Daniel Williams investigated the employment sizes of manufacturing establishments in metro and nonmetro areas. Although the latest data available for their study was from 1976, more recent figures suggest that their results are still valid.

They found that small manufacturing firms outnumbered large ones by a wide margin in both metro and nonmetro areas. Nevertheless, nearly 80 percent of all manufacturing jobs in nonmetro areas were provided by establishments employing 100 or more workers. About 38 percent of nonmetro manufacturing jobs were in establishments employing at least 500 workers.

For metro areas, the percentages were similar. A somewhat smaller share of manufacturing jobs (73 percent) were in firms with 100 or more workers, while a slightly larger share of the jobs (42 percent) were provided by establishments with at least 500 workers.

Digging into specific manufacturing industries, the analysts found that the average employment of establishments in nonmetro areas is often much larger than in metro areas. This pattern extended to many of the manufacturing sectors they examined, though it applied primarily in the more densely populated Northeast and South—not in the West.

According to Bluestone and Williams, these results are consistent with economic theory. One factor is lower nonmetro land costs, which encourage sprawling complexes employing many workers. Another is that large, mature firms often choose to settle in nonmetro areas, where labor costs are lower. Also, some nonmetro establishments are larger simply because they are not surrounded by specialized suppliers, but have to produce many of their own inputs.

In Many Industries, Nonmetro Manufacturing Establishments Have a Big Edge in Workers

Industry	Average number of employees per establishment	
	Nonmetro	Metro
Apparel and other textile products[1]	129	45
Furniture and fixtures[1]	93	38
Leather and leather products[1]	151	68
Paper and allied products	184	86
Textile mill products[1]	199	96
Rubber and plastic products[1]	105	58
Electrical equipment and supplies	206	116
Chemicals and allied products	104	72
Primary metal industries	181	154

[1] Low-wage, labor-intensive industries.
Source: *County Business Patterns*, Bureau of the Census, 1976 data.

"Most of the manufacturing employment in nonmetro areas is concentrated in relatively large establishments," Bluestone says. "Add to that the relatively small size of many rural communities, and it's logical to conclude that they may be more dependent on the jobs provided by a single manufacturer than you would expect to find in a large, diversified urban area."

Another source of employment vulnerability in rural areas is their heavy dependence on low-wage, labor-intensive industries, such as manufacturers of clothing, textile mill products, furniture, leather goods, and rubber and plastic products. Many of these industries face intense competition from foreign suppliers, who have the advantage of lower labor costs.

The average low-wage, labor-intensive manufacturing establishment in nonmetro areas employed 63 people in 1976; in metro areas the average was 42 employees. Moreover, such establishments accounted for around 40 percent of total manufacturing employment in nonmetro areas, compared with only about 20 percent in metro areas.

"In the past, these industries have been shifting from metro to nonmetro areas, providing an important source of employment growth in rural and small-town America. Now, however, an increasing shift of these operations overseas jeopardizes this source of jobs," says Bluestone.

"Because the low-wage, labor-intensive industries employ a relatively large proportion of the local labor force in some rural communities, the loss of such establishments can hit these communities especially hard."□

[*Based on material provided by economists Herman Bluestone and Daniel Williams of the Economic Development Division, Economic Research Service.*]

Waterway User Fees: Who Picks Up the Tab?

Congress may soon consider new proposals for shifting a greater share of the cost of running America's inland waterways to users. This article, continued from last month's "Agriculture's Stake in Waterway User Fees," focuses on two of the key questions about how a user fee law—particularly one that required full cost recovery—might affect agriculture.

For farmers, the most sensitive issue raised by waterway user fees is who will ultimately pay them.

Most impact assessments have assumed that the fees would eventually be passed back to farmers, says Bill Gallimore of USDA's Economic Research Service. However, barge or elevator operators might temporarily absorb some of the cost, especially if there were strong competition among bargelines or elevators.

A recent study, done by Purdue professor James Binkley and USDA economist Jerry Sharples, deals exclusively with the question of how much of the fees would ultimately be passed back to farmers in the form of lower farm prices.

Binkley and Sharples point out that it is really a question of alternatives. If U.S. grain export prices went up by the full amount of the fee, would our foreign customers buy elsewhere? Or maybe not buy at all?

Their conclusion is basically no. The United States, they reason, has such a large share of world grain and oilseed markets that any price action taken here has world market repercussions. "The potential exists," says Sharples, "for a significant portion of the fees to be passed forward to foreign buyers."

To test their analysis, they set up a computer model of world wheat trade and then calculated what would happen if wheat transportation costs rose by 5 cents a bushel.

The price increase would cause some trade flow adjustments, they found. Some former U.S. wheat customers would switch to Canada and a few other suppliers. U.S. wheat exports would decline less than 1 percent, but 65 percent of the user fee would be paid by importers. The remaining 35 percent would be paid by farmers and others on the U.S. side.

Other specialists disagree, however. They contend that the United States is the world's residual supplier of grain and soybeans, not the price-setting leader. The biggest portion of waterway fees would sooner or later find its way back to producers, they say, except in times when diminished world supplies created a seller's market.

Uneven Regional Effects

There is little disagreement among specialists about the final major question raised by full-recovery waterway fees: Will some regions be affected more than others? The answer is definitely yes.

Of the 25,000 miles of navigable U.S. waterways, the vast majority are in the eastern half of the country. USDA economist Mike Harris also notes that most waterways are located near primary corn and soybean producing areas. Thus, he says, eight states accounted for 89 percent of corn and soybean barge exports in 1977: Illinois, Iowa, Minnesota, Missouri, Kentucky, Ohio, Arkansas, and Indiana. Wheat producing areas are somewhat less dependent on water transportation, although Minnesota and Washington wheat shippers would definitely be affected by user fees, Harris says.

A Department of Transportation study measured user fee effects on farm income by state under what may be termed a "worst case" scenario. This assumed that farmers would pay 100 percent of the fees in the form of lower farm prices—and also pay somewhat higher fertilizer prices. The researchers concluded that if a systemwide fee were put into effect (at 1990 traffic levels), the six states with the greatest loss in farm income would be Illinois (−$35.5 million), Minnesota (−$15.7 million), Iowa (−$12.8 million), Missouri (−$5.1 million), Wisconsin (−$2.7 million), and Kentucky (−$2.6 million).

On the other hand, if a segment-specific fee were implemented, Washington would bump Kentucky from the lineup. The top six would be Illinois (−$38.2 million), Minnesota (−$21.7 million), Iowa (−$16.9 million), Missouri (−$6.0 million), Washington (−$4.4 million), and Wisconsin (−$3.7 million).

Under either system, the state feeling the greatest impact would be Illinois. It is situated on three waterways that are heavy grain carriers: the Illinois, the upper Mississippi, and the Ohio. In 1977, nearly 80 percent of Illinois corn, soybean, and wheat exports were transported by barge. The state exported 53 percent of the corn it produced that year and 49 percent of the soybeans.

Researchers at the University of Illinois have estimated how farmers in the state would be affected by different levels of user fees. They calculated that if a fuel tax of 70 cents a gallon (equal to 5.25 cents a bushel) were imposed and all of the tax were passed back to farmers, the cost in 1985 would be $66 million, or an average of $656 per farm. On the other hand, a fuel tax of 30 cents a gallon (equal to 2.25 cents a bushel) would cost $28 million by 1985, or $281 per farm.

The 70-cent tax would take about 4.8 percent of Illinois net farm income, according to the researchers, while the 30-cent tax would take about 2.1 percent.

However, the researchers also acknowledge that access to low cost transportation results in higher grain prices for Illinois producers. In 1981, Illinois farmers were getting an average of $2.55 for a bushel of corn, whereas the Indiana price was $2.45, the Iowa price $2.35, and the Minnesota price $2.25.

The Illinois researchers say that the state's "price and market access advan-

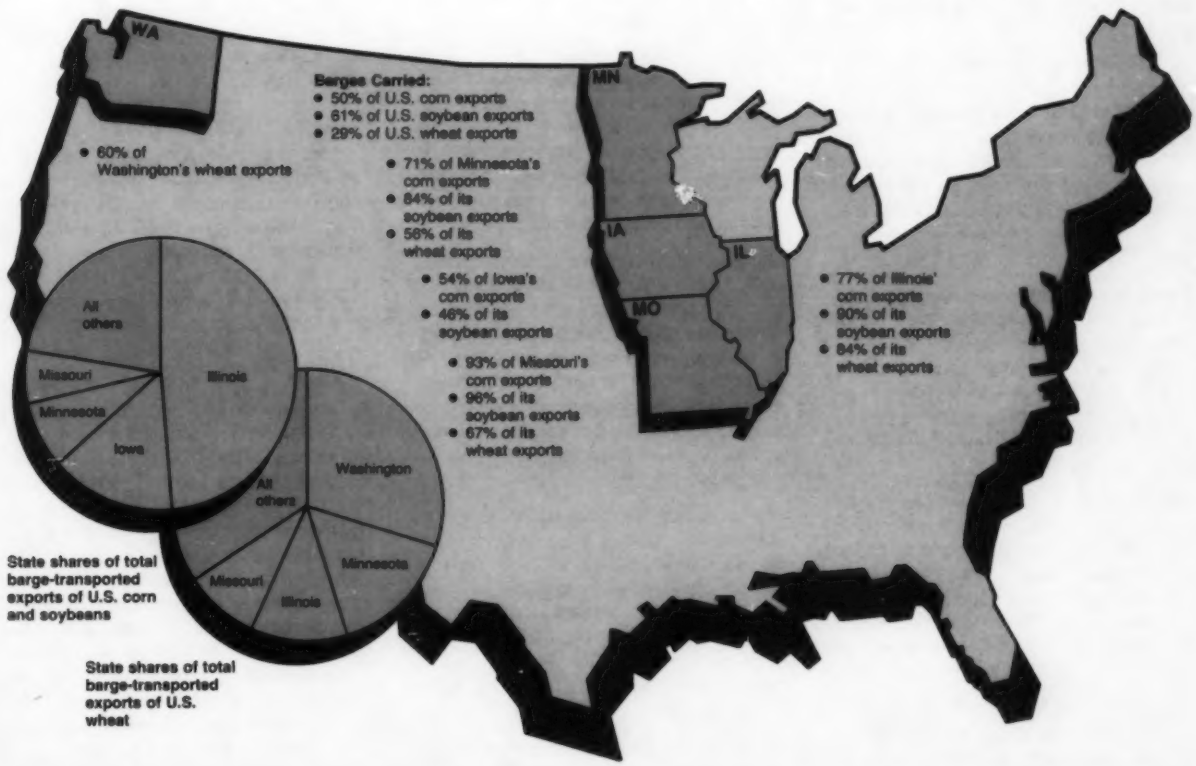
tages" also are reflected in the percentage of its crops that go under loan. For 1979, 1980, and 1981, "all midwestern states except Ohio and Indiana had a higher proportion of their production in the grain reserve program than did Illinois."

According to Gallimore, advocates of full-recovery user fees would say that Illinois proves their point—government waterway subsidies have affected the distribution of farm income among producing areas. Advocates take the position, Gallimore explains, that the areas that might be hit hard by user fees are the same ones that have benefited from government-maintained waterways in the past.

In testimony before Congress, Alice Rivlin, the director of the Congressional Budget Office, stated that inland waterways now receive the largest subsidies of any mode of freight transportation. "Fees for waterways are part of a broad federal policy of charging users the full costs of federally provided transportation services," she said. "Under such a policy, user fees would not necessarily put waterborne transportation at a disadvantage relative to other modes. Rather, they would help correct the distortions created by current subsidies." □

[Based on material provided by ERS economists Bill Gallimore and Mike Harris of the National Economics Division and Jerry Sharples of the International Economics Division, with additional information from Charles Pearson and John Gerald (recently retired) of the USDA Office of Transportation.]

Some Key Farm States Are Very Dependent on Inland Waterways To Get Their Agricultural Exports to Gulf and Ocean Ports



The figures on the state maps show the percentage of that state's exports of corn, soybeans, or wheat that traveled to ports by barge, instead of by rail or truck. The two pie charts show state shares of total U.S. barge shipments of corn, soybeans, and wheat for export. All figures are for 1977, the most recent year for which an extensive grain flow survey was done.

Grain Prices Linked to Location of Stocks

World grain stocks are at record levels, and roughly 60 percent of those surplus supplies are sitting right here in the United States. Little wonder that prices are so depressed.

In competitive markets, prices are bound to move in the opposite direction when production grows faster than demand and inventories mount. But consider this: Does it make any difference whether those inventories are held here or abroad?

For grain, the answer seems to be yes, it can make a big difference where stocks are held, according to economists of USDA's Economic Research Service. Their findings are based on an econometric analysis of the relationships between stock levels, the geographic distribution of stocks, and prices over the last 20 years.

"Based on these relationships, the location of world grain stocks does have an impact on U.S. farm prices and world prices," says economist John Dunmore. "If today's huge stocks were redistributed so that the United States was left with a smaller share of the total, grain prices would almost certainly be higher than they are now."

Prices would get a boost, perhaps a significant boost, he explains, even without any change in the volume of global grain stocks. "The key factor is reducing U.S. stocks because they play a much larger role in setting world and U.S. prices than stocks held outside the United States."

These conclusions provide an encouraging note for the payment-in-kind (PIK) program, which is designed to reduce U.S. stocks. Less obvious, however, is the international implication that all grain exporting nations pay a price penalty when the United States is left with most of the stockholding burden.

Dominance of U.S. Stocks

World grain stocks (which include coarse grains, wheat, and rice) are expected to weigh in at 266 million metric tons by the close of the current 1982/83 marketing year, which comes between June and October—it varies by commodity. That's up nearly 50 million tons from stocks at the end of the 1981/82 season and a whopping 90 million tons above 1980/81 year-ending stocks.

The key factor is reducing U.S. stocks because they play a larger role in setting prices.

Meanwhile, U.S. grain stocks are expected to reach 155 million tons, up 50 million tons from last season and more than 90 million tons above 1980/81. Thus, all of the increase in global stocks over the past 2 years has ended up in the United States.

Why did this happen?

"When markets are oversupplied," says Dunmore, "we take the burden of adjustment because we're the major free trader of grains in the world. Exports drop, and the United States essentially becomes the world's residual stockholder, absorbing the excess stocks through its loan and grain reserve programs."

Our position is aggravated by the strong U.S. dollar which makes U.S. goods less competitive on world markets by raising the cost to most foreign buyers. In addition, high interest rates tend to push the stockholding burden back down the marketing chain to the producing nation. Importers put off new orders because the cost of holding inventories is higher.

The unusually disproportionate role of current U.S. stocks is most evident for coarse grains, particularly corn (coarse grains also include sorghum, barley, oats, and several other grains). In a normal year, the United States holds somewhat over half of the world's coarse grain stocks and 65 to 70 percent of the corn stocks.

At the end of this season, however, the United States will probably hold more than 70 percent of world coarse grain stocks and more than 80 percent of the corn stocks.

World wheat stocks are not nearly so concentrated, but a similar pattern is apparent. During the 1979–81 period, the United States held about 35 percent of world wheat stocks. By the end of this season, the United States will hold about 43 percent of the total, based on recent estimates.

With such a dominant U.S. role in the grain market, both stocks and trade (U.S. grain accounts for about half of global grain exports), a movement in U.S. stock levels should have a major impact on prices, according to Dunmore. "This would seem to be true," he says, "regardless of whether the movement is an actual reduction in overall stocks or a redistribution away from such a heavy concentration in the United States."

Prices Respond to Redistribution

To test this theory, Dunmore and his colleagues applied the results of their econometric analysis of past relationships between grain stock levels, the distribution of stocks, and prices. Based on their equations, they found that changes in U.S. stock levels appear to be the key price mover; that it's much less important how those changes occur.

To illustrate their findings, they adjusted the distribution of current global grain stocks so that the U.S. share of the total matched the average U.S. share during the 1979–81 period. For example, USDA analysts have estimated that the United States will hold about 41 million tons of wheat at the end of the current season, major exporting nations will hold about 23 million tons, and other nations will hold 31 million tons. The total is 95 million tons. This gives the United States a 43-percent share of global stocks, major exporters a 24-percent share, and other nations a 33-percent share.

In the last 3 years, however, the United States averaged only a 35-percent share of world wheat stocks, while major exporters held a 27-percent share and other nations a 38-percent share. A 35-percent share of this season's stocks would leave the United States holding only about 33 million tons, down 8 million from the level actually expected. If U.S. stocks were reduced by this amount, the question is what would happen to farm prices.

Dunmore found that such a decline in stocks would apparently generate an increase of around 45 cents per bushel in U.S. wheat prices, assuming those stocks weren't distributed elsewhere in the world. If the 8 million tons in U.S. stocks were redistributed to major exporters and other nations according to their 1979–81 shares, the net effect on wheat prices would be plus 37 cents.

The results for coarse grains were similar. The United States is expected to end this season with almost 112 million tons, 73 percent of the nearly 154 million tons in global coarse grain stocks. Adjusting the U.S. share according to the 1979–81 average would reduce U.S. stocks by almost 28 million tons to 84 million.

If the 28 million tons were not distributed elsewhere, the stocks reduction would raise U.S. farm prices by 31 cents. If the stocks were redistributed to match the average 1979–81 shares, farm prices would rise somewhat less—23 cents.

Looking at the overall price projections, it is evident that the price increases would be somewhat greater—an added 8 cents for both coarse grains and wheat—if a reduction in U.S. stock levels reflected an actual decline in global stocks. But the difference is relatively small.

"From our analysis," says Dunmore, "the major portion of the price increase is based solely on a drawdown in U.S. stocks, regardless of whether those stocks are consumed or redistributed elsewhere."

Taking the Cue from U.S. Prices

The consequences of the disproportionate stocks distribution are not limited to the United States.

"When supplies are growing faster than demand," says Dunmore, "world prices tend to take their cue from U.S. stock levels and loan rates. In effect, U.S. loan rates for wheat and corn set an approximate floor price not just in U.S. markets but in world markets too.

"Clearly, a more equitable stocks distribution pattern would help raise the overall level of world prices in times of oversupply and perhaps benefit other exporters as well as the United States."

The catch, according to Dunmore, is that our competitors are generally unwilling to share the stockholding burden, or even adjust their production to world demand. "They insulate their farm sector and their markets, encouraging production even now when the demand just isn't there. This forces the United States into the role of stock adjuster and production adjuster for the world."

Their policies are costly, Dunmore says. When U.S. stocks pile up and world prices fall, the European Community and other exporting nations that insulate their agriculture find their budgets increasingly strained. The widening gap between low world market prices and the relatively high prices they guarantee their farmers may mean even heavier export subsidies so they can sell their products to foreign markets. □

[Based on information provided by USDA economist John Dunmore and other analysts of the International Economics Division, Economic Research Service.]

The Distribution of World Grain Stocks Can Have a Significant Impact on U.S. Farm Prices

	Year-ending grain stocks		Change in stocks	Contribution to change in price
	Expected levels for 1982/83[1]	Adjusted to 1979–81 shares		
	million metric tons *(percents of total)*		million metric tons	cents per bushel
Wheat				
United States	41.3 *(43)*	33.1 *(35)*	−8.2	+45
Major competitors	22.6 *(24)*	25.7 *(27)*	+3.1	+ 2
Importers and others	31.1 *(33)*	36.2 *(38)*	+5.1	−10
Total	95.0 *(100)*	95.0 *(100)*	0.0	+37
Coarse grains				
United States	111.7 *(73)*	83.9 *(55)*	−27.8	+31
Major competitors	9.7 *(6)*	14.3 *(9)*	+4.6	−18
Importers and others	32.4 *(21)*	55.6 *(36)*	+23.2	+10
Total	153.8 *(100)*	153.8 *(100)*	0.0	+23

[1] Based on USDA's mid-January supply-demand estimates.

A Shifting, Expanding, Contracting Resource

The nation's cropland acreage shifted, contracted, and expanded in response to changing market conditions during the last three decades.

From 1949 to 1969, cropland harvested declined more than 70 million acres from 344 million to 273 million. U.S. agriculture had entered a period of excess capacity. Farm productivity outpaced demand, and government programs idled tens of millions of acres.

Beginning in the early 1970's, however, U.S. exports surged as worldwide crop shortages and increased buying power overseas stimulated the demand for American farm products. By 1974, cropland harvested had increased 30 million acres from the 1969 low, and another 15 million acres were added by 1978.

In a recent report, economists James Horsfield and Norman Landgren use Census of Agriculture data to compare two periods: 1949–69, a period of cropland decline; and 1969–78, a period of cropland expansion. They examine regional patterns of cropland use and some of the reasons behind the shifts in the amount and location of land coming into or out of crop production.

Some highlights of their findings:

- Between 1949 and 1969, cropland used for crops increased in 785 counties at a combined rate of about a million acres a year. However, this gain was more than offset by the 2,322 counties that together lost an average of 2.9 million acres a year. The largest losses were in the Northeast, Southeast, and Appalachia, but net declines were reported in all regions except the Corn Belt and Mountain region.
- In contrast, the 1969–78 period was one of expansion. Cropland used for crops rose in 1,875 counties; 1,232 counties registered declines. The largest gains were in the Corn Belt and Delta region, while the downward trend continued in the Great Plains.
- No single factor explains either the direction or magnitude of the acreage changes. "Farmers responded to many factors affecting regional comparative advantage, including available resources, production costs, market demand, current technology, and government policies.

***Cropland Trends Across the Nation** by James Horsfield and Norman Landgren. (Published December 1982; 28 pages, text, data tables, and maps; GPO stock no. 001–019–00328–6; $3.00.)*

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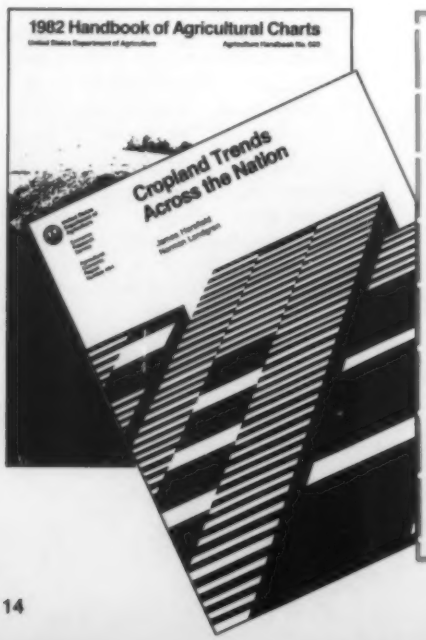

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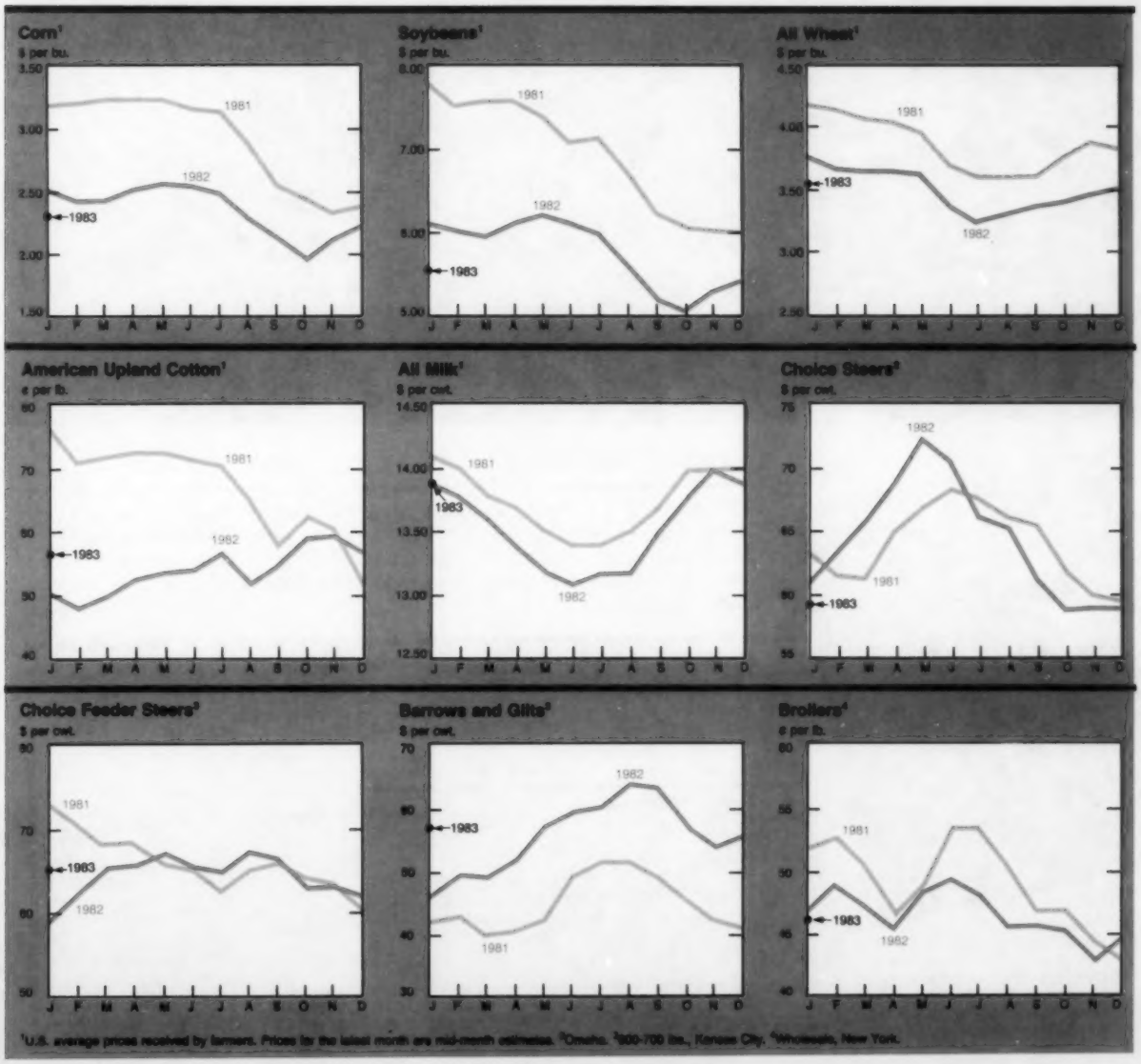
Monthly Price Monitor

Farm prices rose about 1% overall from December to January, but prices for most major crops remained depressed. Corn was down about 20¢ a bushel from January 1982 and down 90¢ from 1981.

Soybean prices were the lowest for any January since 1976. Wheat prices rose for the sixth month in a row but still trailed January 1981 and 1982 levels. Only cotton was up—6¢ a pound above the low January 1982 price. In livestock, Choice steers sagged to the lowest January price since 1978, but barrows and gilts were up $11 per cwt from 1982, $15 from 1981, and $20 from 1980.



[1]U.S. average prices received by farmers. Prices for the latest month are mid-month estimates. [2]Omaha. [3]600-700 lbs., Kansas City. [4]Wholesale, New York.

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